

Section 23-2 Roots (pages 584-588)



Key Concepts

- What are the two main types of roots?
- What are the main tissues in a mature root?
- What are the different functions of roots?

Types of Roots (page 584)

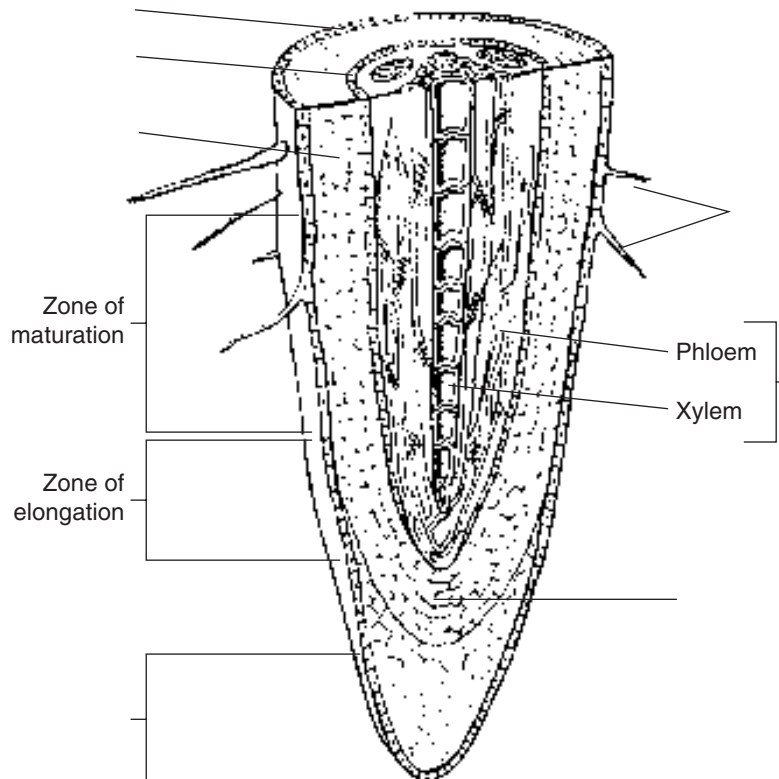
1. How are primary roots and secondary roots different in some plants? _____
2. Complete the table about types of roots.

TYPES OF ROOTS

Type of Root	Description	Mainly in Dicots or Monocots?	Examples
	Long and thick primary roots that grow deep into the soil		
	Roots that are usually shallow and consist of many thin roots		

Root Structure and Growth (page 585)

3. Label the parts of a root on the illustration.



4. What is the structure of a mature root? _____

5. Water enters the plant through the large surface area provided by the _____.
6. What does the cortex of a root consist of? _____

7. The vascular tissue in the central region of a root is called the _____.
8. What protects the apical meristem of a root? _____
9. Where does most of the increase in root length occur? _____

Root Functions (pages 586–588)

10. What are two functions of a plant's roots?
 - a. _____
 - b. _____
11. Is the following sentence true or false? The ingredients of a soil can determine what kinds of plants grow in it. _____
12. Circle the letter of each sentence that is true about active transport of minerals in roots.
 - a. Water molecules move into the plant by active transport.
 - b. ATP is the source of energy used to pump mineral ions from the soil into the plant.
 - c. The cell membranes of root hairs contain active transport proteins.
 - d. Using active transport, a root actually pumps water into the plant.
13. What happens to the water and dissolved minerals after they move into the cortex?

14. Each of the cells of a root's endodermis is surrounded on four sides by a waterproof strip called a(an) _____.
15. Why is there a one-way passage of materials into the vascular cylinder in plant roots?

16. What is root pressure? _____
